



Metering Bulk Materials From Multiple Silos

Question

I have two round silos with cone shaped bottoms sitting side-by-side. I store the same bulk material in both silos and need to meter the product from one or both silos into our process. Is it possible to use one screw feeder to connect the two silo discharges and meter the bulk material from one or both silos?

Answer

The configuration you have proposed has been attempted many times with limited success. It is very difficult to meter bulk materials from two different inlet points on a screw feeder. Each inlet will be flood-loaded, meaning the screw feeder is 100-percent full in the inlet area at two different points along the length of the screw feeder. As the screw rotates, the bulk material is moved toward the discharge. If the flight pitch remains constant between both inlet points, the screw flights will be 100-percent full as the bulk material passes the second inlet point. Since the flights are 100-percent full, no material will enter the screw feeder from the second silo. The bulk material will shear through the head load from the second silo until the first silo is empty. The horsepower and torque requirements of the screw feeder will increase due to the extra demand. If the flight pitch increases between the first and second inlet point, bulk materials will be allowed to enter the screw feeder at the second inlet. However, if the bulk material is free-flowing, some of material entering the second inlet may flood back toward the first inlet causing the screw feeder to jam.

The most conservative solution to metering bulk materials from two silos is to use a metering device on each silo. Typically, the **best metering devices are screw feeders and rotary valves.** Each silo would have a screw feeder or rotary valve and would meter the bulk material to a screw conveyor, which would then transfer the bulk material to your process. You would then be able to feed from each silo individually or at the same time, giving you maximum flexibility. Downtime due to material flow issues would be virtually eliminated.



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